



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Patent and Trademark Office**

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
|-----------------|-------------|----------------------|---------------------|
|-----------------|-------------|----------------------|---------------------|

09/617,104      07/14/00      HALDERMAN

J      52352-507

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MM91/0913

EXAMINER

COLLINS, D

ART UNIT

PAPER NUMBER

2823

DATE MAILED:

09/13/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

|                              |                 |                  |  |
|------------------------------|-----------------|------------------|--|
| <b>Office Action Summary</b> | Application No. | Applicant(s)     |  |
|                              | 09/617,104      | HALDERMAN ET AL. |  |
|                              | Examiner        | Art Unit         |  |
|                              | D. M. Collins   | 2823             |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 July 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- |  |  |
|--|--|
| 15) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                     | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 16) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____    | 20) <input type="checkbox"/> Other: _____                                    |

Art Unit: 2823

## **DETAILED ACTION**

### ***Election/Restriction***

1. Applicant's election of group II, claims 6-12 in Paper No. 4 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 6 is rejected under 35 U.S.C. 102(b) as being unpatentable over Pine et al. (5,164,022, dated 11/17/92).

Pine et al. show the apparatus as claimed in the Figures 1-2 with corresponding text. In re claim 6, Pine et al. disclose an apparatus for depositing flux 40 onto a solder work surface 42 with a chamber 22 having a plurality of openings therein heated by means of a U-shaped current

Art Unit: 2823

conducting heating element or thermode 14 within which the flux chamber resides. This heating element heats the flux within the chamber until it vaporizes and is forced from the chamber through the openings onto the solder work surface.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pine et al. (5,164,022, dated 11/17/92) in view of Master et al. (6,098,867, dated 8/8/00).

Pine et al. show as stated above in 35 U.S.C. 102.

However, Pine et al. does not show computer data storage.

Master et al. show an automated brush fluxing system for application of controlled amount of flux to packages.

In re claims 7, 8, 9, 10, 11, and 12, Master et al. show an automated method of applying flux to substrate 200 on which a semiconductor chip 204 is to be assembled in a flip chip configuration 206 by applying a controlled amount of flux to the substrate by a brush 326 that

Art Unit: 2823

applies the flux to the substrate in a programmed pattern of strokes thereby overcoming the surface tension of the flux/substrate surface. The empirically determined program is applied to a mechanical stage that moves the brush and to a flux reservoir 324 by a CPU 320.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Pine et al. in view of Master et al. to include computer data storage in an effort to improve the production method of applying flux only on the critical surfaces pertaining to flip-chip interconnections.

### *Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Deven M. Collins whose telephone number is (703) 305-7840. The examiner can normally be reached on Monday-Friday from 6:30 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy, can be reached on (703) 308-4918. The fax phone number for this Group is (703) 305-3432.

Serial Number: 09/617104

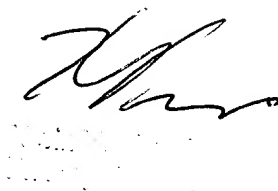
Page 5

Art Unit: 2823

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

DMC

September 10, 2001

A handwritten signature in black ink, appearing to be "J. H. ...", located in the lower right quadrant of the page.